GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Spectroscopic methods, PG_00069101		
Field of study	Technical Physics		
Date of commencement of studies	February 2027	Academic year of realisation of subject	2027/2028
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	1.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Solid State Physics -> Faculty of Applied Physics and Mathematics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marcin Dampc	
	Teachers	dr inż. Marcin Dampc	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	15.0	0.0	0.0	15

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	15	2.0	8.0	25

Subject objectives

The aim of the course is to discuss the basic theoretical and practical issues of spectroscopy and presentation of the various types of spectroscopic methods and ways to interpret spectra.

Learning outcomes

Course outcome	Subject outcome	Method of verification

Subject contents

Course content – laboratory
1. Study of a hemispherical electron monochromator;
2. Mass spectrometry using quadrupole mass analyser;
3. Electron impact electronic excitation of nitrogen molecules using electron spectrometry techniques
4. Measurement and analysis of emission and absorption spectra of anthracene

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Performance of laboratory exercises and laboratory reports preparation	100.0%	100.0%

Recommended reading

Basic literature	[1] J.M.Hollas, Modern Spectroscopy, John Wiley & Sons, Ltd. [2] J.Sadlej, Molecular Spectroscopy, WNT, Warszawa (in Polish) [3] D.L.Pavia i in., Introduction to Spectroscopy, Brooks/Cole [4] Z.Kęcki, "Basics of molecular spectroscopy", PWN, Warszawa (in Polish)
Supplementary literature	[5] H. Haken, H. Ch. Wolf., "Molecular physics and elements of quantum chemistry", Springer
eResources addresses	Supplementary https://enauczanie.pg.edu.pl/2025/course/view.php?id=2305 -

Example issues/ example questions/ tasks being completed

1. Determination of the energy resolution of a hemispherical selector as a function of transmission energy

2. Sample identification based on mass spectra

3. Determination of the spectroscopic constants of anthracene based on excitations in the photoabsorption spectrum.

Practical activites within the subject	Not applicable

Document generated electronically. Does not require a seal or signature.